



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
. 10/077,074	02/15/2002	Lelon Wayne Sanderson	PC01001	3505

7590

06/16/2005

Curtis W. Dodd  
2803 Bentley Street  
Huntsville, AL 35801

EXAMINER

DOAN, KIET M

ART UNIT

PAPER NUMBER

2683

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/077,074

Applicant(s)

SANDERSON, LELON WAYNE

Examiner

Kiet Doan

Art Unit

2683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 22-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 22-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Amendment*

This office action is response to amendment file on 03/14/05.

Claims 19-21 and 35-40 are cancelled.

Claims 1-11, 22 25 and 32 are amended. This office action is FINAL.

### *Response to Arguments*

Applicant's arguments with respect to claims 1-18 and 25-34 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-18 and 22-34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Welles, II et al. (Patent No. 6,737,984) in view of Chastain et al. (Patent No. 5,805,042):

Consider **claim 1**, Welles teaches a method for extending the range of an RF communication system using a high voltage (HV) cable and neutral cable as the transmission channel, where the voltage between the cable and neutral is equal to or greater than 4,000 volts and the HV cable is simultaneously carrying low-frequency current of a power distribution system (C3, L10-39, Fig.1, No.132, Illustrate as HV cable

Art Unit: 2683

which voltage between the cable and neutral is equal to or greater than 4,000 volts).

Welles teaches the limitation of claim as discuss **but fail to teach** the method comprising the steps of: transmitting over the transmission channel, an RF signal from a central location downstream towards a remote location; splitting the HV cable into an upstream segment and a downstream segment where the segments are RF isolated and low-frequency connected; receiving the RF signal from the upstream segment at a first port of a reconitioner; directing a reconitioned RF signal from a second port of the reconitioner to the downstream segment of the HV cable.

In an analogous art, Chastain teaches "Radio frequency low hum-modulation AC bypass coil". Further, Chastain teaches the method comprising the steps of: transmitting over the transmission channel, an RF signal from a central location downstream towards a remote location; splitting the HV cable into an upstream segment and a downstream segment where the segments are RF isolated and low-frequency connected; receiving the RF signal from the upstream segment at a first port of a reconitioner (C1, L15-55, teach RF and HV cable transceiver over coaxial cable which read on HV cable and contain RF chokes that isolate RF); directing a reconitioned RF signal from a second port of the reconitioner to the downstream segment of the HV cable (C3, L24-28, Fig.3, No.36, teach amplifier which means as reconitioned RF to the downstream segment of the HV).

Therefor, it would have been obvious at the time that the invention was made that person having ordinary skill in the art modify Welles and Chastain system, such that using a high voltage (HV) cable and neutral cable that equal to or greater than 4,000

volts transmitting over the transmission channel, splitting the HV cable into an upstream segment and a downstream segment where the segments are RF isolated, to provide means for extending the distance transmits of RF in different direction.

Consider **claim 2**, Chastain teaches the method of claim 1 wherein the RF isolation is provided by a low pass filter comprising blocking inductors and at least one capacitor for RF attenuation (C1, L46-50, C3, L35-, Fig.4, No.56, Illustrate low hum mod choke which means as low pass filter).

Consider **claims 3-4, 26-27, 30-31 and 33-34**, Chastain teaches the method of claim 1 wherein the reconitioner is a repeater/regenerator (Fig.3, Illustrate No.36 amplifier which means as repeater/regenerator).

Consider **claim 5**, Chastain teaches the method of claim 1 wherein the directing step utilizes a series capacitor and inductor arrangement with a connection going from the juncture of the capacitor and inductor to the reconitioner (C3, L25-40).

Consider **claim 6**, Chastain teaches the method of claim 1 wherein the steps are adapted for two-way communication (C1, L17-21 teach two way headend and subscriber).

Consider **claim 7**, Welles teaches a method for extending the range of an RF

communication system using a high voltage cable and neutral as the transmission channel comprising the steps of (C3, L10-22, C5, L23-34, teach power line Fig.1, No.124 for extending the range of an RF).

Chastain teaches forming a first segment and a second segment of the HV cable wherein the segments are low frequency connected and RF isolated (C1, L15-55, first segment would read on headend to subscriber and second segment read on subscriber to headend which contain RF chokes that isolated RF); providing couplers for RF coupling the segments to ports on a reconditioner; and installing the reconditioner for reconditioning RF signals from each of the segments (Fig.3, No.38 as coupler and No.36 as reconditioner for reconditioning RF signals).

Therefor, it would have been obvious at the time that the invention was made that person having ordinary skill in the art modify Welles and Chastain system, such that extending the range of an RF communication system using a high voltage cable and neutral as the transmission, forming a first segment and a second segment of the HV cable and RF isolated and providing couplers for RF, reconditioner for reconditioning RF signals, to provide means for extending the distance of transmits RF in different direction

Consider **claim 8**, Chastain teaches the method of claim 7 wherein the forming step is provided by a low pass filter (Fig.4, No.56, Illustrate as low pass filter).

Consider **claim 9**, Chastain teaches the method of claim 7 wherein the coupling

step is provided by a lightning arrester in series with a ferrite clamped on a cable (C3, L35-44).

Consider **claims 10-11**, Chastain teaches the method of claim 7 wherein the reconditioning step includes amplification and equalization (Fig.3, No.36 teach amplifier which inherently contain equalization and demodulation/modulation ).

Consider **claim 12**, Welles teaches an apparatus for isolating RF signals in a broadband data communication system having a HV cable and a neutral cable as a communication channel (C3, L10-22, C5, L23-34), the apparatus comprising: a first RF signal on the HV cable; a second RF signal on the HV cable; an isolation filter for electrically isolating the first RF signal from the second RF signal, the isolation filter comprising a ladder network of one (C1, L15-55, C3, L10-29 teach first RF on HV cable read on Fig.1, No.124 second RF signal on the HV cable read on No.122).

Chastain teaches or more ferrites clamped on the HV cable and one or more capacitors connected between the HV cable and the neutral cable; and RF couplers on each side of the isolation filter for coupling the RF signals to ports of a reconditioner (Fig.3, No.38 as coupler and No.36 as reconditioner for coupling the RF signals to ports of a reconditioner).

Therefor, it would have been obvious at the time that the invention was made that person having ordinary skill in the art modify Welles and Chastain system, such that

first RF signal on the HV cable; a second RF signal on the HV cable, electrically isolating the first RF signal from the second RF signal and RF couplers on each side of the isolation filter for coupling the RF signals to ports of a reconditioner, to provide means for keeping RF signal clean prevent ingress occur.

Consider **claim 13**, welles and Chastain teach the limitation as discuss above but fail to teach the apparatus of claim 12 wherein the isolation filter is a symmetric filter.

However, it would have been an obvious matter of design choice to have isolation filter is a symmetric filter in the system, to provide means for clean RF signal.

Consider **claim 14**, Chastain teaches the apparatus of claim 12 wherein the one or more capacitors is a power factor correction capacitor (C4, L29-34).

Consider **claim 15**, Chastain teaches the apparatus of claim 12 wherein the RF signals are greater than 20 MHz (C3, L15-20).

Consider **claim 16**, Chastain teaches the apparatus of claim 12 wherein the reconditioner has a processor for monitoring voltage levels within the reconditioner (Fig.3, No.36 Illustrate as amplifier which inherently contain processor for monitoring voltage levels).

Consider **claims 17-18 and 23-24**, Chastain teaches the apparatus of claim 12



wherein the reconditioner is a two-way repeater/regenerator (C3, L10-24, Fig.3, No.36 teach RF can travel either direction which means as two-way repeater/regenerator).

Consider **claim 22**, Chastain teaches an apparatus for RF by-passing a power factor correction capacitor on a high voltage cable and directing communication signals to a reconditioner, the apparatus comprising: a plurality of ferrites clamped on the high voltage cable next to the node formed by the high voltage cable and one lead of the capacitor (C3, L35-56); and couplers connected to the high voltage cable and the reconditioner (Fig.3, No.38 Illustrate couplers connected to the high voltage cable No.34 and the reconditioner as No.36).

Consider **claim 25**, Chastain teaches an apparatus for distributing RF communication signals from a HV cable to and from a plurality of branch circuits, the apparatus comprising: a plurality of low pass filters for RF isolating the HV cable from each of the HV branch circuits (Fig.4, No.56, Illustrate as plurality of low pass filters); a plurality of couplers where one coupler is connected to the HV cable and to each of the HV branch circuits, and a reconditioner having a HV cable port and a HV branch port for each of the branch circuits, the reconditioner having amplifiers and filters for directing and conditioning the communication signals (C3, L10-34, Fig.3, Illustrate section of HV branch where would be contain plurality of couplers No.38, reconditioner as No.36).

Consider **claim 28**, Chastain teaches the apparatus of claim 25 wherein the RF frequencies are in the band from 20 MHz to 200 MHz (C3, L15-20).

Consider **claim 29**, Chastain teaches an apparatus coupling a communication signal from a transmission cable feeding a distribution substation to a distribution cable exiting the distribution substation, the apparatus comprising: a transmission blocking filter for blocking the communication signal from entering the distribution substation by way of the transmission cable (Fig.4, Illustrate blocking cap which means as blocking filter); a transmission coupler connected to the transmission cable; a distribution blocking filter for blocking RF energy from entering the distribution cable by way of the distribution cable; a distribution coupler connected to the distribution cable; and a reconitioner having ports connected to the couplers, the reconitioner comprising directional couplers and amplifiers (C3, L10-34, Fig.3, Illustrate transmission coupler as No.38, the reconitioner as No.36).

Consider **claim 32**, Chastain teaches an apparatus for coupling a communication signal on an RF coaxial cable to HV cable for upstream and downstream communication, the apparatus comprising: a low pass filter for isolating and the segmenting the HV cable to a downstream side and an upstream side (C1, L17-25 teach downstream read on headend to subscriber, upstream read on subscribe to headend, Fig.4, No.56 as low pass filter); a reconitioner having a coaxial port for receiving the coaxial cable and two HV cable ports, and two couplers for coupling the

HV cable ports to each side of the HV cable (Fig.3, No.36 as reconitioner having a coaxial port, No.38 as couplers for coupling the HV cable ports).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiet Doan whose telephone number is 571-272-7863. The examiner can normally be reached on 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kiet Doan  
Patent Examiner



WILLIAM TROST  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600